Subject:
SDL PRE-ENGINEERED LIFT SDL 505.05-49 TOP & SOUTH SIDE PLATES

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1. PURPOSE

This procedure covers the removal and installation of the TOP & SOUTH SIDE lead shield blocks designated on NSLS SDL drawing number SDL-505.05-049 for the SDL beam line.

2. REFERENCES

2.1. ES&H 1.5.1 Lockout/Tagout Requirements

2.2. ES&H 1.6.0 Material Handling: Equipment and Procedures

2.3. ES&H 1.6.1 Material Handling: Operator Training and Qualifications

2.4. ES&H 1.6.2 Lifting Safety

2.5. DOE-STD-1090-2001 Hoisting and Rigging

2.6. Drawing No. SDL-505.05-049 Source Development Lab NISUS Shielding, Lead Shielding Assembly

2.7. Drawing No. SDL-505.05-054 Side Plate C

3. PRE-REQUISITIES

3.1. The beam line shall be shut down and LOTO applied and proper authorization obtained prior to starting this lift.

3.2. Barricades shall be erected to prevent un-authorized personnel from entering the area.

3.3. All personnel shall wear proper Personnel Protective Equipment (Hard Hat, Safety Shoes, Gloves).

3.4. All local hazards shall be located and identified.

3.5. A Critical Lift Review Form shall be current and approved by the BNL Lifting Safety Committee.

3.6. No work shall be performed on the shield blocks while suspended from the crane.

3.7. A minimum of two (2) people, Crane Operator and Signal Person, shall be present to complete this procedure.

3.8. All personnel, authorized to be in the area, shall know and be capable of demonstrating the Emergency Stop Signal.

4. ROLES AND RESPONSIBILITES

4.1. A Person(s) In Charge (PIC) shall be designated by the NSLS. PICs shall be qualified as per ES&H 1.6.1 Material Handling. A PIC shall be present during any lift. The PIC shall not be the Crane Operator.

4.2. One person shall be designated as the crane operator. He shall have a current SAC card for Crane Operator (Q010 and Q010A) and have completed the Basic Rigging Course (GST155). Only this person will operate the crane during this lift.

4.3. One person shall be designated as the signal person. This person shall have a completed the Basic Rigging course (GST-155). Only this person will give signals to the crane operator.

NOTE: THE CRANE OPERATOR SHALL OBEY A STOP SIGNAL FROM ANY PERSON.

5. **INSPECTIONS**

5.1. The crane shall have a current annual inspection by the BNL Hoisting and Rigging Inspector.

5.2. All slings shall have a current annual inspection by the BNL Hoisting and Rigging Inspector.

5.3. A daily Overhead Crane/Hoist Inspection Checklist shall be completed at the beginning of each shift.

5.4. All rigging (eyebolts, shackles, slings etc.) shall be inspected for signs of wear at the beginning of each shift.

5.5. All threaded lifting holes shall be inspected for clean and proper threads.

6. **EQUIPMENT**:

6.1 Overhead Crane 729CRNE-001.

6.2 Double leg bridle slings-minimum 3', adequate capacity

6.3 Continuous slings- Minimum 10', adequate capacity

6.4 Eye bolts- adequate capacity

6.5 Shackles- adequate capacity.

7. **REMOVALS AND INSTALLATION PROCEDURE**

CAUTION: THE AREA OVER AND AROUND THE BEAM LINE HAS MANY OBSTRUCTIONS. USE EXTREME CAUTION WHEN WORKING IN THIS AREA.

All of the shield blocks for this section of the beam line utilize the same rigging. The rigging is attached and the blocks are lifted in the same manner. Only the sequence in which the blocks are lifted changes. See Section 7 for sequences.

7.1 Top Plates

7.1.1 Remove any interfering items (lead bricks, end block assembly (item 29)) from the shielding to be removed.

7.1.2 Install two double leg bridle slings onto the 2-ton crane (729-CRNE001) hook making sure that the hook mouse seats properly.

7.1.3 Position the overhead crane with slings over the shield block that is to be removed.

7.1.4 Inspect the threaded holes to ensure that the eyebolts will engage properly.

7.1.5 Install the eyebolts into the shield block.

7.1.6 Connect the slings to the eyebolts in the shield block.

7.1.7 Take up the slack in the rigging. Check all of the rigging for proper alignment and adjust if necessary.

7.1.8 Remove all mounting hardware holding the shield block in place.

7.1.9 Lift the shield block high enough to clear the beam line.

7.1.10 Move the shield block south and lower onto the floor.

7.1.11 Disconnect the rigging from the shield block

7.1.12 Repeat steps 7.1.1 thru 7.1.11 for each top shield plate to be removed.

7.2 SOUTH SIDE PLATES (Except SDL-505.05-054)

7.2.1 Remove any interfering items (lead bricks, end block assembly (item 29)) from the shielding to be removed.

7.2.2 Install a double leg bridle slings onto the 2-ton crane (729-CRNE001) hook making sure that the hook mouse seats properly.

7.2.3 Position the overhead crane with slings over the shield block that is to be removed.

7.2.4 Inspect the threaded holes to ensure that the eyebolts will engage properly.

7.2.5 Install the eyebolts into the shield block.

7.2.6 Connect the slings to the eyebolts in the shield block.

7.2.7 Take up the slack in the rigging. Check all of the rigging for proper alignment and adjust if necessary.

7.2.8 Remove all mounting hardware holding the shield block in place.

7.2.9 Lift the shield block high enough to clear the beam line.

7.2.10 Move the shield block south and lower onto the floor.

7.2.11 Disconnect the rigging from the shield block

7.2.12 Repeat steps 7.2.1 thru 7.2.11 for each shield plate to be removed.

7.3 SOUTH SIDE PLATE **SDL-505.05-054**

7.3.1 Position the overhead crane above the shield plate.

7.3.2 Install two 10' continuous slings in a choker hitch at the two marked lift points.

7.3.3 Connect the slings to the crane hook making sure the hook mouse seats properly.

7.3.4 Take up the slack in the rigging. Adjust the rigging as needed.

7.3.5 Remove all mounting hardware holding the shield block in place.

7.3.6 Lift the shield block high enough to clear the Beamline.

7.3.7 Move the shield block south and lower onto the floor.

7.3.8 Disconnect the rigging from the shield block.

7.4 Inspect all rigging and return to its storage locker.

7.5 Return the crane to its normal storage location.

7.6 Install each block by reversing the steps in 7.1, 7.2 and 7.3.

8. LIFTING SEQUENCES

The following sections list the shield blocks in groups starting at the east end of the beam line shown on NSLS SDL drawing SDL-505.05-049. Each group can be removed individually for access to individual sections of the beam line. The following sections list the sequence in which the shield blocks need to be removed and any interference that must be removed. All shield blocks are lifted following directions listed in Section 7.

8.1 SDL-505.05-053, SDL-505.05-055

8.1.1 Remove any interferences from the blocks to be removed.

8.1.2 Remove 505.05-055

8.1.3 Remove 505.05-053

8.2 SDL-505.05.054, SDL-505.05-056, SDL-505.05-057

8.2.1 Remove borated poly shield 505.05-081

8.2.2 Remove panel 505.05-058

8.2.3 Remove 505.05.057

8.2.4 Remove 505.05-056

8.2.5 Remove 505.05-054

Revision Review Log